Claim Amendments:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for biaxially-texturing a surface-region of an amorphous material, comprising:
   depositing the amorphous material onto a substrate; [[and]]
   supplying active oxygen near the substrate during ion beam bombardment of the amorphous material to create an amorphous material having a biaxially textured surface, wherein the ion beam bombardment occurs at a predetermined oblique incident angle of about 0-45° between an ion beam and the surface of the amorphous material;
   depositing at least one intermediate layer overlying the amorphous material; and
   growing a superconducting layer overlying the at least one intermediate layer to create a high temperature coated superconductor, wherein the superconducting layer has a J_c of greater than about 100,000 A/cm^2 at 77 Kelvin and 0 Tesla.

2. (Original) The method of claim 1, wherein the active oxygen comprises at least one of: atomic oxygen, oxygen ion, and ozone.

3. (Original) The method of claim 1, wherein the active oxygen is a component of the ion beam.

4. (Original) The method of claim 1, wherein the active oxygen is operable for facilitating re-crystallization of the amorphous material and for reducing an oxygen partial pressure.

5. (Original) The method of claim 1, wherein the biaxially textured surface of the amorphous material comprises a thickness of about 2-20nm.

6. (Original) The method of claim 1, wherein the biaxially textured surface of the amorphous material comprises a thickness of about 5-10nm.

7. (Original) The method of claim 1, wherein the amorphous material comprises at least one of: magnesium oxide (MgO), yttria-stabilized zirconia (YSZ), cerium oxide (CeO_2), and yttrium oxide (Y_2O_3).

8. (Original) The method of claim 1, wherein the substrate is a flexible metal alloy.

9. (Original) The method of claim 1, wherein the temperature of the substrate is increased from about 22°C to about 600°C during ion beam bombardment.

10. (Original) The method of claim 1, wherein the temperature of the substrate is increased from about 22°C to no more than 300°C during ion beam bombardment.

11. (Original) The method of claim 1, wherein the amorphous material is deposited onto the substrate using at least one of: electron beam evaporation, ion sputtering, magnetron sputtering, pulsed laser deposition, and chemical vapor deposition.

12. (Canceled)

13. (Currently Amended) The method of claim [[12]] 1, wherein the superconducting layer has an in-plane texture of less than about 20° full-width-at-half-maximum (FWHM).

14. (Canceled)

15. (Currently Amended) The method of claim [[14]] 1, wherein the intermediate layer comprises at least one of: a homo-epitaxial buffer layer and a hetero-epitaxial buffer layer.

16. (Original) The method of claim 15, wherein the hetero-epitaxial buffer layer has a good crystal lattice match with a predetermined superconducting material.

17. (Original) The method of claim 16, wherein the hetero-epitaxial buffer layer comprises cerium oxide (CeO_2).

18. (Currently Amended) The method of claim [[12]] 1, further comprising utilizing the high temperature coated superconductor in at least one of: a power cable, a power transformer, a power generator, and a power grid.

19. (Original) The method of claim 18, wherein the power cable comprises a conduit for passage of a cooling fluid, and wherein the high temperature coated superconductor is disposed proximate the conduit.

20. (Original) The method of claim 19, wherein the power cable comprises at least one of: a power transmission cable and a power distribution cable.

21. (Original) The method of claim 18, wherein the power transformer comprises one or more windings, wherein at least one winding comprises the high temperature coated superconductor.

22. (Original) The method of claim 18, wherein the power generator comprises:

a shaft coupled to a rotor comprising at least one electromagnet comprising one or more rotor coils, and

a stator comprising a conductive winding surrounding the rotor,

wherein the conductive winding or at least one of the rotor coils comprises the high temperature coated superconductor.

23. (Original) The method of claim 18, wherein the power grid comprises:

a power generation station comprising a power generator;

a transmission substation comprising at least one power transformer for receiving power from the power generation station, and for stepping-up voltage for transmission;

at least one power transmission cable for transmitting power from the transmission substation;

a power substation comprising at least one power transformer for receiving power from the power transmission cables, and for stepping-down voltage for distribution; and

at least one power distribution cable for distributing power to an end user.

24. (Currently Amended) A method for producing a high-temperature coated superconductor, comprising:

depositing an amorphous buffer film onto a metal alloy substrate;

bombarding a surface-region of the amorphous buffer film with an ion beam at an oblique incident angle of about 0-45° between the ion beam and a surface of the amorphous buffer film while supplying active oxygen to the surface-region of the amorphous buffer film in order to create a biaxially textured surface-region thereon; [[and]]

growing a superconducting film on the biaxially textured surface-region of the amorphous buffer film to create a high-temperature coated superconductor<u>; and</u>

<u>depositing at least one intermediate layer between the amorphous buffer film and the superconducting film</u>.

25. (Original) The method of claim 24, wherein the active oxygen comprises at least one of: atomic oxygen, oxygen ion, and ozone.

26. (Original) The method of claim 24, wherein the oxygen ion is a component of the ion beam.

27. (Original) The method of claim 24, wherein the biaxially textured surface-region of the amorphous buffer film comprises a thickness of about 2-20nm.

28. (Original) The method of claim 24, wherein the biaxially textured surface-region of the amorphous buffer film comprises a thickness of about 5-10nm.

29. (Original) The method of claim 24, wherein the amorphous buffer film comprises at least one of: magnesium oxide (MgO), yttria-stabilized zirconia (YSZ), and yttrium oxide (Y_2O_3).

30. (Original) The method of claim 24, wherein the amorphous buffer film is deposited onto the metal alloy substrate using at least one of: electron beam evaporation, ion sputtering, magnetron sputtering, pulsed laser deposition, and chemical vapor deposition.

31. (Original) The method of claim 24, wherein the superconducting film has a J_c greater than about 1,000,000 A/cm^2.

32. (Original) The method of claim 24, further comprising producing kilometer length tapes, cables or coils comprising the high-temperature coated superconductor.

33. (Canceled)

34. (Currently Amended) The method of claim [[33]] <u>24</u>, wherein the intermediate layer comprises at least one of: a homoepitaxial buffer layer and a hetero-epitaxial buffer layer.

35. (Original) The method of claim 34, wherein the hetero-epitaxial buffer layer has a good crystal lattice match with a predetermined superconducting material.

36. (Original) The method of claim 35, wherein the hetero-epitaxial buffer layer comprises cerium oxide (CeO_2).

37. (Original) The method of claim 24, further comprising utilizing the high-temperature coated superconductor in at least one of: a power cable, a power transformer, a power generator, and a power grid.

38. (Original) The method of claim 37, wherein the power cable comprises a conduit for passage of a cooling fluid, and wherein the high-temperature coated superconductor is disposed proximate the conduit.

39. (Original) The method of claim 38, wherein the power cable comprises at least one of: a power transmission cable and a power distribution cable.

40. (Original) The method of claim 37, wherein the power transformer comprises one or more windings, wherein at least one winding comprises the high-temperature coated superconductor.

41. (Original) The method of claim 37, wherein the power generator comprises:

a shaft coupled to a rotor comprising at least one electromagnet comprising one or more rotor coils, and

a stator comprising a conductive winding surrounding the rotor,

wherein the conductive winding or at least one of the rotor coils comprises the high-temperature coated superconductor.

42. (Original) The method of claim 37, wherein the power grid comprises:

a power generation station comprising a power generator;

a transmission substation comprising at least one power transformer for receiving power from the power generation station, and for stepping-up voltage for transmission;

at least one power transmission cable for transmitting power from the transmission substation;

a power substation comprising at least one power transformer for receiving power from the power transmission cables, and for stepping-down voltage for distribution; and

at least one power distribution cable for distributing power to an end user.